

The validity and reliability of measurement of thoracic Kyphosis using flexible ruler in postural Hyper-kyphotic patients

Abstract

Introduction: Increased normal thoracic kyphosis due to postural reasons is one of the conditions which needs accurately be measured for better evaluation and treatment. Flexible Ruler is a tool which measures the amount of kyphosis non-invasively but there is not any study about its validity and reliability in postural hyper Kyphotic subjects. The objective of this study was investigating the validity and reliability of measurement taken by flexible ruler in quantifying the amount of thoracic kyphosis in postural hyper kyphotic patients.

Materials & Methods: In 25 patients with postural hyper-kyphosis and 15 healthy subjects we measured the amount of kyphosis twice using flexible ruler by a single tester. In kyphotic subjects also the amount of kyphosis was measured as Cobb angle on radiographic films in two times by one tester and repeated in one time by another tester. The Reliability of measurements in two subject groups and validity of measurements compared with radiology in kyphotic group was studied.

Findings: In both of the groups we found excellent Intratester reliability in measurement of kyphosis using flexible ruler. The measurement of kyphosis on radiological films also had excellent Intratester and intertester reliability. The validity of the measurement of kyphosis angle using flexible ruler was very good but the "Index of Kyphosis" on the curve taken by flexible ruler had poor validity.

Conclusion: Based on our results, the flexible ruler can be used as a valid and reliable tool for non-invasive measurement of thoracic curve in healthy and postural kyphotic subjects.

Key words: postural hyper kyphosis/ flexible ruler/ reliability/validity

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